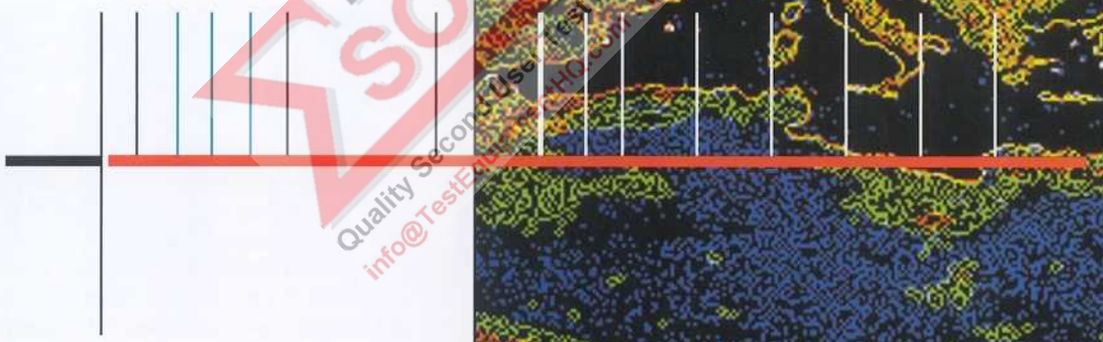
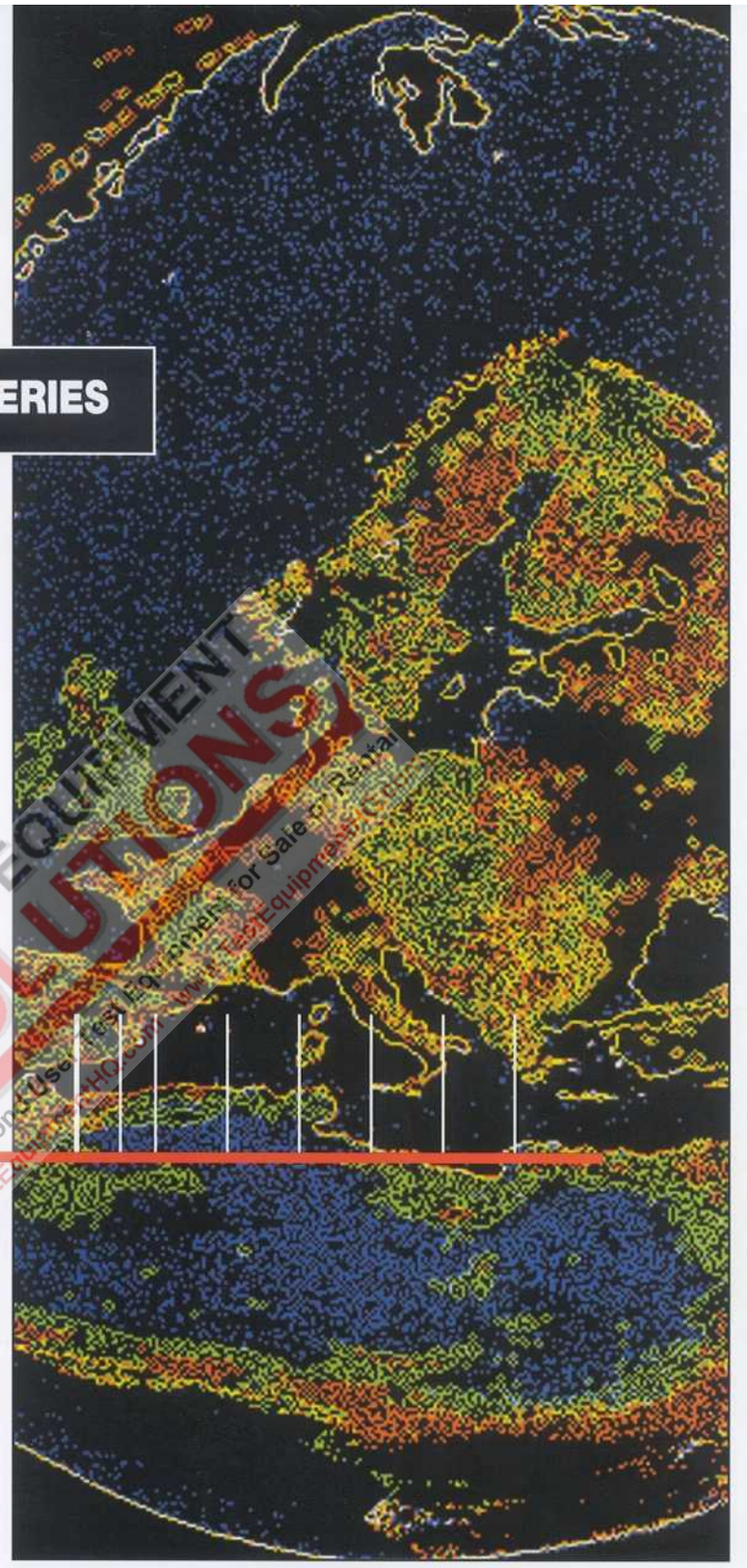
BURST GENERATOR SERIES

for all EMC fast transient and burst tests





SCHAFFNER

Your number one name for EMC

NSG 2025: Burst generator

for world-wide EMC test applications

To meet the increasingly complex demands of EMC design and test for today's high-speed electronic and electrical products, Schaffner has developed the NSG 2025 range of advanced, highly-configurable, fast transient and burst voltage generators.

Based on a versatile 'building-block' concept, NSG 2025 lets you select and combine pulse generator, coupling and control modules to create a flexible, upgradeable EMC test work station to match your needs today and into the future.

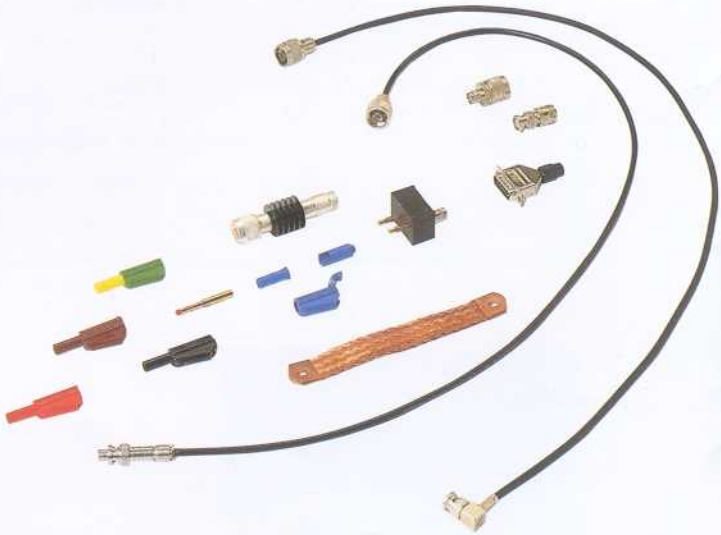
NSG 2025 brings together Schaffner's world renowned experience in advanced instrumentation for EMC test, and sophisticated Windows-based control software, for applications from early product development to pre-compliance and compliance testing. It has been designed to meet not just today's EMC test standards, but those planned for the future too - securing its place as a key element in any comprehensive EMC test bench for many years to come.

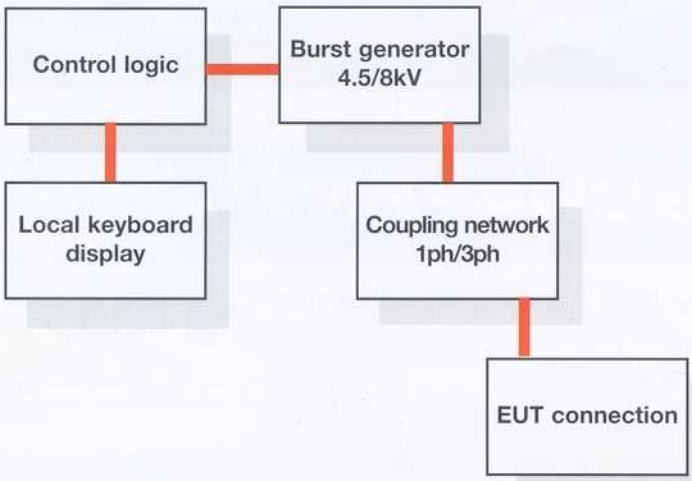
Built to Schaffner's high quality standards and open architecture principles, for upgradeability and integration into complete test and measurement systems, NSG 2025 is an essential investment for test strategy development and management.

Powerful pulse generation

The NSG 2025 offers the most extensive range of pulse voltages and burst frequencies available in a single instrument. Pulses can be coupled to the mains supply voltage or applied as a pure high voltage for data and signal line testing. Pre-programmed IEC standard tests are available at the touch of a button and pulse parameters are completely user configurable - manually via front panel control or via PC-Windows software control. Not only does the NSG 2025 meet all the requirements of current world test standards with comfortable margins, it also anticipates likely future modifications too with functions including a user-configurable burst frequency to 1MHz and extended selectable coupling modes.

Burst tests to IEC 1000-4-4
Generic standards EN 50082-1 and -2
US requirements ANSI-IEEE C.62.41





One system for all needs

Flexible configuration
Fully upgradeable

The NSG 2025 'building block' design allows the user to select the most appropriate modules for the application. Maximum voltage level, frequency range, current rating and coupling networks - single or three-phase - are selected to suit, with front panel control or PC-based software control, or both, so you can configure an EMC work-station that matches your needs. And the investment you make today is protected into the future because all the elements of the NSG 2025 remain upgradeable, and fully compatible with the other Schaffner EMC test instrumentation.

A wide range of test accessories is available for the NSG 2025 and for complete integrated EMC test and measurement, the NSG 2025 is fully compatible with the Schaffner ProfLine system.

World-wide application

Testing product for world-wide markets is easy with the NSG 2025. Supply voltage is switchable between 110/115V and 220/240V, and country-specific power-line sockets for the EUT (equipment under test) are interchangeable. So full compliance and volume production tests can be run on finished products and systems destined for different markets, simply by selecting the right EUT supply voltage and plugging-in the appropriate powerline socket panel. For more detailed design characterization work earlier in the product development cycle, a universal connection panel is readily available.

Built-in safety

Like all Schaffner EMC test instrumentation, the NSG 2025 is built to the highest standards of safety. Every component in the system that carries a high voltage is designed to be inherently safe, with interlock features built into the hardware, ensuring automatic power-down in case of violation of any safety condition. Interlocks can be extended to accessories such as test enclosures and hoods, and for ultimate safety and peace of mind, an emergency stop button on the front panel facilitates immediate, safe power-down, and automatic disconnection of the unit under test. Hitting any key on the key-board during the test has the same effect.

Quality

The NSG 2025 is built to Schaffner's exacting, world-renowned quality standards at the company's manufacturing facility in Luterbach in Switzerland, which carries the ISO 9001 quality standard.

NSG 2025: Powerful control

for error free parameter set-up

A 16-bit microprocessor built into the NSG 2025 provides a powerful local control function which can be operated manually, using the front panel key-pad and display, or remotely via an RS232 link to a PC running the WIN 2025 control software. Even under software control, all the real-time instrument operations, including safety supervisory checks and critical timings, are performed by the local processor, for maximum system integrity and ease of system integration.

The NSG 2025 can be supplied with a front panel control key-pad and display, or with a PC running WIN 2025 control software under Windows, or with both. The manual and software control options both allow the user to manipulate all test parameters and give access to pre-programmed IEC 1000-4-4 standard tests. The software control option gives access to a range of additional test sequencing, saving and reporting functions.

Manual control

A simple key-pad and clear, eight-line liquid crystal display give the user access to all the instrument's powerful functionality. The standard, pre-programmed IEC tests can be called up, and used straight away or modified and saved. All test parameters including pulse amplitude, duration, rise time and polarity as well as burst frequency, duration and phase angle - can be set directly, for custom test. Programming is intuitive, so EMC engineers will find the instrument easy to use without special training. Up to eight different custom tests can be saved and used again or modified at any time.

Instant visual indication of the set parameters and current test situation is given by the clear LCD screen. As a luxury option this display is available in a multi-colour version. Green denotes the instrument is ready to perform a test. While a test is in progress, the display is red with a bar graph showing how far the test has still to run. A yellow screen indicates the instrument is pausing between test pulses and is waiting for the command to continue.

WIN 2025: Software control

The WIN 2025 Windows-based software module allows remote, real-time access to all the instrument functions, and provides a whole range of additional test sequencing, programming and reporting capabilities. With a just few simple point-and-click operations, engineers can control test parameters directly, or can set up tests and save them to disk, drastically reducing set-up times for repeated tests and avoiding potential errors in re-keying information.

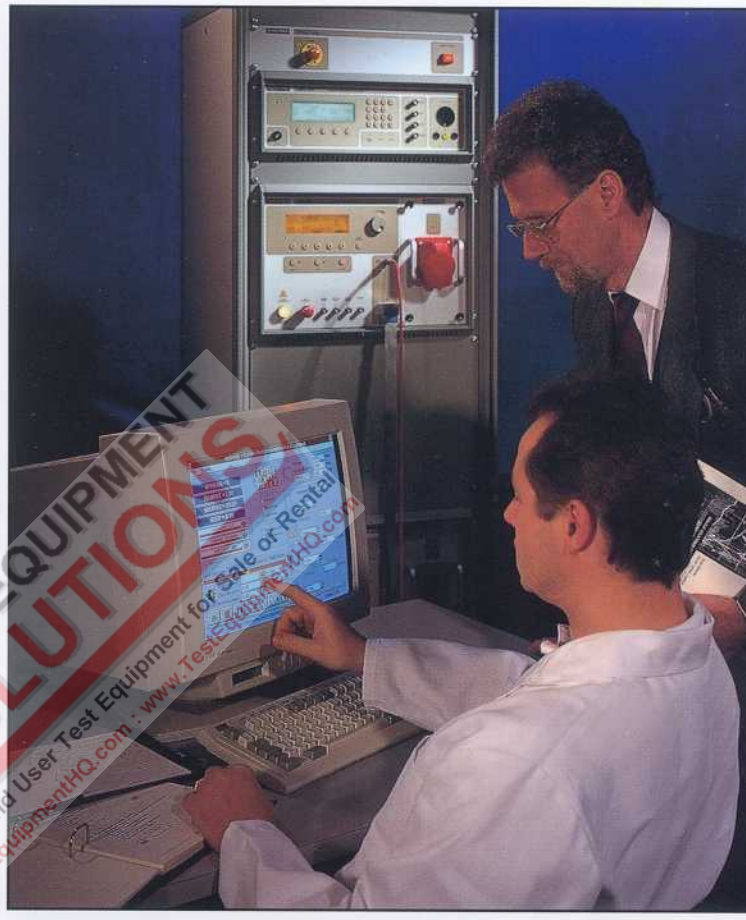
Any of the pre-programmed tests or custom tests saved to disk can easily be combined into a sequence for automatic execution. When the sequence is run, WIN 2025 executes each of the tests in turn, without any need for further operator intervention. This allows engineers to optimize test procedures and to manage laboratory test time efficiently for maximum throughput and more detailed testing than ever.

Professional reporting

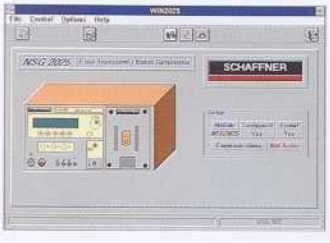
A sophisticated report generator provides automatic reporting of test results in a professional format - with a facility for on-line addition of engineers' comments. These hard copy records provide an invaluable reference for design engineers throughout the verification process and meet legal requirements for proof of compliance testing.

All the test results are also automatically logged in ASCII format so historical results can be printed or exported - for example into a spreadsheet or word processor.

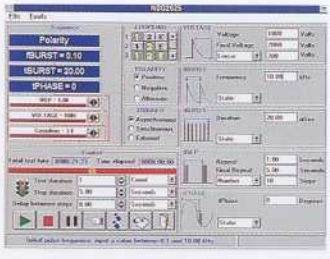
The WIN 2025 software package, like all the modules in the Schaffner WIN software series, is fully compatible with the POWERSTAR test and measurement control environment.



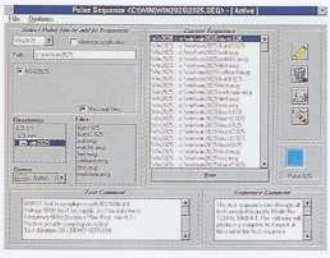
- **Pre-programmed IEC compliance tests**
- **Familiar Windows environment**
- **Test sequencing**



The powerful WIN 2025 software module provides real time control of all instrument functions, test parameters and reporting facilities



A single screen allows engineers to set and adjust all pulse parameters; pulses can be optimized using the step function, run in real-time and/or saved to disk



Saved and standard pulses can be combined into a complete test sequence, for automatic execution, with a simple 'select-and-drag' mouse operation

TECHNICAL DATA

NSG 2025

Instrument power	100 - 115V and 220 - 240V / 50 - 60Hz
Pulse amplitude	200V to 4.5 or 8kV (open circuit) adjustable in steps of 10V
Polarity	+ or - selectable
Rise time	5ns ± 30% (10 – 90%)
Pulse width	50ns ± 30% (50 Ω / < 2 Ω), 100ns ± 50% (> 1k Ω)
Burst frequency	0.1kHz to 1MHz ±2% or 0.1kHz to 500 kHz ±2%
Pulses per packet	1 to 150 pulses
Burst duration	pulses per packet / burst frequency, (15ms burst duration as per IEC 1000-4-4 up to 10kHz)
Burst repetition	100ms to 10s ±2ms or 2%
Impedance	50 Ω ± 20%
Coupling network	1-phase or 3-phase - see table
EUT supply	switched, 24 to 500Vac, 50 – 60Hz
Coupling modes	line to reference ground (IEC 1000-4-4), selected lines together to reference ground all lines to reference ground (common mode)
Phase angle	asynchronous/synchronous 0 - 360° ±2°
Decoupling capacitor	10nF
Decoupling attenuation	>20dB
Cross talk attenuation	>30dB
Construction	19" table top unit (rack mounting option)
Dimensions (HxWxD)	310 x 449 x 500mm
Weight	20 to 25 kg approx

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Ordering information

NSG 2025 Fast Transient Burst Generator Series

Type	Max burst amplitude	Max burst frequency	coupling phase	network current	front panel key-pad/ display	
NSG 2025-1	4.4kV	1MHz	1	16A	yes	.....
NSG 2025-2	4.4kV	1MHz	1	16A	no	.....
NSG 2025-3	4.4kV	1MHz	1	30A	yes	.....
NSG 2025-4	4.4kV	1MHz	3	30A	yes	.....
NSG 2025-5	8kV	500kHz	1	16A	yes	.....
NSG 2025-6	8kV	500kHz	1	16A	no	.....
NSG 2025-7	8kV	500kHz	1	30A	yes	.....
NSG 2025-8	8kV	500kHz	3	30A	yes	.....

NSG 2025 Options:

WIN 2025	Software control package	.....
CAS 2025	Calibration set	.....
CDN 126	Capacitive Coupling Clamp according to IEC 1000-4-4 with SHV connector and interlock, including interconnection cables	.....
INA 161	Rack mounting brackets	.....
	Adapters for EUT connection with national plugs:	
INA 250	IEC 309 32A 3-phase (red) for max burst voltage 8kV	.....
INA 251	IEC 309 16A 1-phase (blue) for max burst voltage 8kV	.....
INA 252	Germany, Schuko 1-phase 16A	.....
INA 253	Switzerland, 1-phase 10A	.....
INA 254	France, 1-phase 16A	.....
INA 255	GB, 1-phase 13A	.....
INA 256	US, 1-phase 15A	.....
INA 260	Warning lamp assembly	.....
INA 261	Separate SHV plug for 5mm cables	.....
INA 262	Universal safety plug set	.....
INA 303A	Optical link set (230V), 10m opto cable	.....
INA 304A	Optical link set (115V), 10m opto cable	.....
INA 305A	Optical link set (100V), 10m opto cable	.....

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NSG 2025 and NSG 1025 system components are designed and manufactured according to the strict quality requirements of the ISO 9001 standard.